Applying Mindfulness to Your Clinical Work

Mindfulness and Neuroplasticity: How Mindfulness Can Boost Willpower, Awaken Compassion, and Change the Brain with Ruth Buczynski, PhD and Kelly McGonigal, PhD
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with Ruth Buczynski, PhD
and Kelly McGonigal, PhD

Dr. Buczynski: Hello everyone and welcome. I’m Dr. Ruth Buczynski the President of the National Institute for the Clinical Application of Behavioral Medicine and I’m so glad that you’re here with us today.

Our guest tonight is Kelly McGonigal, a specialist in mindfulness. So we’re lucky to have you here, Kelly. Thanks for being here!

Dr. McGonigal: Thanks for having me back!

How Meditation Changes the Brain and Increases Willpower

Dr. Buczynski: Let’s jump right in. Kelly, how does meditation change the brain and increase willpower?

Dr. McGonigal: There’s a lot of interesting research that’s looking at how meditation changes the brain more broadly, so maybe I’ll start there.

One of the things that we know about how anything changes the brain is that when you ask the brain to do a specific skill or be in a certain state, it’s easier for the brain to do that the next time.

A starting point for us would be to ask: What is it that people are doing when they’re meditating and what specific systems of the brain does that strengthen or change?

Some of the best research on this comes out of a team at UCLA led by Eileen Luders and she, over the last few years, maybe half a decade or so, has been bringing meditators into the lab to look at how the brains of meditators differ from non-meditators.2-6

They eventually looked at a very broad range of meditation styles from Buddhist meditation to yoga meditation to the more secular mindfulness-based stress reduction meditation techniques that are taught.

She’s found, almost independent of what meditation style people use a few consistent changes in the brain that are associated with practice time, the amount of time one regularly practices meditation as well as how many years people have been practicing.

So, I’ll just highlight some of the changes that I think are the most interesting.

One paper that was just published, this week actually, presented a new finding showing that regular meditators have increased density of an area of the brain in the hippocampus that helps regulate stress responses.6
This finding is really consistent with a broad range of research both from the UCLA lab and other laboratories that have found that this is something you see among people who meditate.

Their brains get better at regulating stress. You see that in the hippocampus, which is an area of the brain that is also associated with memory, but is important for helping the body learn from stressful experiences and shut down the stress response after, a traumatic experience or an experience of anxiety or fear.

Other research has shown that the hippocampus tends to get bigger and better connected among people who regularly meditate.\(^4\)

You also see changes in other systems in the brain associated with stress resilience or stress recovery.

Another area of the brain that seems to be influenced by almost any type of meditation is the brain stem, which is at the very base of the brain – areas of the brain that help regulate what’s happening in the autonomic nervous system.

This shouldn’t be too surprising to anyone who’s ever practiced meditation or done yoga that there is a calming effect with these practices.

It appears that whatever physiological state meditators are able to attain in their practice, it’s actually teaching the brain how to be in that state a little more often and how to return to that state if you’ve been pulled out of it and into a fight or flight response or into anxiety or some other autonomic state that’s less balanced.

We see those changes in the brain that support what I think of as stress resilience.

Another area of the brain that seems to be influenced by meditation is the prefrontal cortex, right behind your forehead which is the area of the brain that we most tend to associate with willpower, and that’s an idea you asked about.

The prefrontal cortex is really important for decision making, for self-awareness and for controlling impulses that sometimes lead us away from our goals – things like regulating emotions, regulating distractions and being able to make good intentional choices. That’s the job of the prefrontal cortex.

It seems that this part of the brain is also bigger and better connected by pretty much any form of meditation, which makes a lot of sense.

If you think about what you do in any form of meditation, you’re really choosing the focus of your attention and you’re learning to regulate all of the distractions that come up that might pull you away from that meditation focus, whether thoughts or body sensations or emotions.

Research from a number of different laboratories has shown that meditation practice increases the density of grey matter and white matter in the prefrontal cortex.\(^4\)
You can think of that (increased density) as being like a muscle – it gets “beefed up” so that it can do things more easily – even hard things more easily.

That build-up of white matter means that brain cells are better able to communicate with each other. They communicate faster and with greater integrity – and that also seems to change from the practice of meditation.

By the way, this particular finding, looking at changes in the prefrontal cortex, has not just come from studies comparing meditators to non-meditators, this also comes from some research where they have taken people who have never meditated before and taught them some meditation and mind-body techniques.¹

So there is evidence that these changes don’t take decades to develop. These changes can be seen in people who are randomly assigned to meditate…

Dr. Buczynski: That’s so exciting. Let’s just stop and talk about that for a minute because that, I think, is a fairly well-designed study. They did use a control group and random assignment. Is that right?

Dr. McGonigal: Yes, a number of studies have done that.

They have looked at some of the better-known meditation techniques like mindfulness-based stress reduction, a standardized eight-week program, as well as some other programs that are less well known but are doing basically the same thing. Some of that research is coming out of Asia⁷ and Europe as well as the United States.

New Findings on Meditation and Willpower

I wanted to mention one fascinating finding that is a newer one coming out of the research looking at the prefrontal cortex.⁴

This study found that with people who regularly meditate, the part of the brain that connects the two sides of the prefrontal cortex is thicker and has more connectivity.

That’s really important when it comes to willpower.

"With people who regularly meditate, the part of the brain that connects the two sides of the prefrontal cortex is thicker and has more connectivity."

When we talk about the neuroscience of willpower, I often break it down into three key strengths with three corresponding brain regions.

You have the right side of your prefrontal cortex which is responsible for, what I call I Won’t Power.

That’s the ability to stop yourself from doing something like eating a piece of cake or smoking a cigarette or spending money or saying something that you’ll regret. You need that right side of the prefrontal cortex to slow you down and stop you.
You also need the left side of the prefrontal cortex which is responsible for what I call *I Will Power*.

That’s the ability to find *approach* motivation. That’s the part of you that says, “I will exercise and I will keep going even though I’m physically uncomfortable and tired.”

It’s the part of you that says, “I will do this thing that makes me anxious even though I’d rather avoid the conflict or I have some self-doubt.”

It’s that left side of the prefrontal cortex that gives you the will to do it.

Then, the third strength of willpower is what I call *I Want Power*.

That is primarily in the ventromedial prefrontal cortex which is right underneath and behind the left and the right sides of the prefrontal cortex.

The part of the brain that is bigger in meditators is the part that allows those structures of the prefrontal cortex to communicate better with each other.

You can imagine how helpful that would be for willpower in the real world when you’re able to remember what you want and what you care about.

That’s the *I Want Power*, and it’s able to communicate with the part of your brain that stops you from doing something that’s *inconsistent* with that goal and motivates you to do something that is *consistent* with that goal.

Again, this is a finding that came out of the UCLA lab.

This part of the corpus callosum that connects the different parts of the prefrontal cortex is denser and better connected. That’s a really exciting finding when we think about having a better integrated brain and not just a bigger brain.

*Dr. Buzynski:* I’m taking notes as fast as I can here because I think this is so fascinating and I love that we’re getting close to understanding all of this.

It sounds like you’re saying that the grey matter is more like the muscle of the brain and the white matter is the communication of the brain.

*Dr. McGonigal:* Yes, the white matter is what’s lining the parts of the brain cells that actually are sending the information from one brain cell to the other.

The density you might want to think of as the number of connections you have.

We’re both increasing connections and making sure that those connections have a lot of integrity…
If we have a moment, I’d like to mention the one other key finding in the brain.

There have been a lot of one-off findings of the brain. We have ideas about what changes in the brain – stress, resilience, and regulation – and we’re looking at the hippocampus, the brain stem, and the prefrontal cortex – those are pretty solid findings.²⁻⁶

The other pretty solid finding has to do with the part of the brain called the insula, which is a little bit interior from the sides of your brain. The insula is a little bit from the cortex and a little bit back from the frontal cortex.²

This is the part of the brain that I’m in love with! It produces both suffering and the positive aspects of compassion…and social connection.

This part of the brain is an incredible paradox.

When you look at suffering, it’s the part of the brain that allows you to make use of the physical information that you get from your own emotions. You know that your heart rate is speeding up. Maybe that means you’re anxious.

Or perhaps you feel a heaviness in your heart and in your stomach and that helps you to know that you’re feeling sadness or grief.

The insula is involved in all of these things and as I described them, you may think, “Why would I want cravings or pain or suffering? I wouldn’t want any of that. Maybe meditation would make this part of the brain smaller.”

But actually, meditation makes this part of the brain bigger and better connected to the other systems we’ve talked about.

Those changes of bigger and better connections as well as the increased use of the insula are associated with really positive outcomes.

There was one study that looked at people who were clinically depressed. They went through a mindfulness meditation training program – the classic eight-week mindfulness-based stress reduction – and found that their improvements in depression were predictive by the degree to which their insula was more activated when they were asked to experience sadness.

The more they were tuning into this part of the brain that feels the physicality of sadness and their own suffering, the less depressed they were at the end of the study.

There have been findings like this suggesting that this increased access to your insula and the physical embodiment of emotions including your own suffering, is a really important predictor of recovering from conditions like physical pain and depression and anxiety.

Dr. Buczynski: Let’s look at that for a moment and try to think that through.
You’re saying that with depressed people, the more…the insula was lighting up and the more they were reporting that they were in touch with their feelings…

**Dr. McGonigal:** In this case, there was no self-report.

This was a study conducted by Norm Farb at The University of Toronto¹. He’s done some amazing work looking at how mindfulness changes people’s ability to directly experience their own emotions and their own sensations.

Basically, he’s looking at how every part of ordinary experience goes into that direct experiencing state rather than what you would think of as the part of the mind that has running commentary on how things are and how they should be, or the part of the mind that likes to escape from direct experience by time traveling to the future or thinking about the past.

He’s done a lot of work looking at what’s going on in the brain when people are directly experiencing their own emotions, their own sensations and anything else that’s happening in the present moment.

He’s discovered that the insula is key to this direct experience. The more that people in this study were showing activation in the insula when they were put into a state of sadness, the more they improved from depression or the more their self-reported depression had improved.

**Dr. Buczynski:** That’s the piece that I need to understand. What does it mean when we say that they were put into a state of sadness?

**Dr. McGonigal:** This is a pretty interesting method. There’s a database of video clips that have been carefully calibrated to poke people’s emotions. Actually, I worked with a team who helped create this database at Berkley⁸ and there are films that have been shown to just make people incredibly, emotionally reactive.

In this particular study, they were watching a scene from *The Champ*. I don’t know if you’ve seen this movie where a little boy watches his father die after a boxing match.

Everyone in the room is helpless. They don’t know what to do. The father is dying. They can’t help the kid and the kid is bawling.

In the study, people were asked to watch this film clip and also to think about how it might connect to their everyday lives.

They’re put into this state – we’re asking people to spin out into the usual habits of depression and despair and provoking a strong emotional response.

So, that’s how we did it in this study.

I know from my own experience with this type of emotion provocation research that they actually picked pretty much the best film clip that you can use for this.
I used to show that film clip when I gave lectures on mindfulness. I couldn’t bring people back afterwards. I wanted them to understand what people went through…

Dr. Buczynski: Now that I understand that piece, tell me again how the research was done.

Dr. McGonigal: Let’s go back a little bit…We have a group of people who are moderately and clinically depressed. They’re having more than a bad day, but they can get out of bed, which is pretty good when you’re depressed.

This is a group of people who had to be able to get out of bed and get to a mindfulness course – a traditional eight-week class on mindfulness-based stress reduction.

Now, before and after the mindfulness training, they went through this type of task where they were watching sad film clips and researchers were looking at what was happening in their brains. They also were reporting on their depression symptoms.

What you saw, compared to a control group who did not get the mindfulness training, was an increase in activation of this experiential system of the brain and most strongly, the insula region if the brain that I’m particularly interested in.

The insula became more activated among people who had gone through the mindfulness training.

The more the insula became activated for any given individual, the more likely these individuals were to have shown recovery from depression as a result of learning mindfulness.

So this study was trying to point to a brain mechanism for recovery, and the study showed that people were improving from their depression as a result of mindfulness.8

“The study showed that people were improving from their depression as a result of mindfulness.”

How Mindfulness Fits into Willpower

Dr. Buczynski: Interesting, interesting…We were talking a moment ago about I Will Power, I Won’t Power and…I Want Power…

I want to get back to how that’s connected to mindfulness. Let’s jump off from there.

Where do you see mindfulness fitting in? You probably have a variety of things that you teach people. I know that willpower is a big expertise of yours and people come to you for training in it.

So where exactly does mindfulness fit in?

Dr. McGonigal: One of the things that I love about mindfulness is that when you look at the state of the mind — when you choose mindfulness — it is completely compatible with all of the strengths of willpower.

When people come to me to develop their willpower, whether they’re taking a class, a workshop, or a retreat, the first thing that I have people do is start to cultivate this quality of attention.

We haven’t defined mindfulness yet and maybe I’ll just share my definition of it.
Dr. Buczynski: Great.

Dr. McGonigal: I know there are a lot of different definitions, but I think of mindfulness as a three-part process.

This is related to work done by Shauna Shapiro, who’s at Santa Clara University here in California. She came up with this model that says that the first part of mindfulness is intention, and that is sometimes left out of the mindfulness discussion in the West.

But mindfulness begins with an intention. If you don’t know what your priorities are, what your goals are, what your values are and what your purpose is, then what’s the point of paying attention?

I like to start my definition of mindfulness with this recognition that your intention is the foundation and then you cultivate attention – specifically to the present moment, what’s happening internally, sensing your own emotions, what’s happening in your body, awareness of what you’re thinking and also attention to the outer environment.

Attention is being able to notice what’s happening with other people, being able to sense cues in your environment.

The third element of mindfulness is the attitude of that attention – what you do with what you notice and the attitude is one of curiosity – I’m really interested to see what’s going on right now – and acceptance.

Acceptance means that whatever I notice, I’m going to try to hold it with compassion and awareness rather than automatic judgment and resistance.

If you start with that definition of mindfulness, it probably starts to make a little bit of sense why that would be so important for willpower because want-power is basically the ability to remember what it is that you care about most.

When you practice mindfulness, I always have people start with checking in with themselves and establishing an intention – whether it’s understanding what their biggest priority in life is right now or even just being clear about what it is that one wants to cultivate in this moment.

For example: My intention is to cultivate a greater sense of what it is I want or a greater ability to be clear about what I want. Then I have some way to hook into that sense of clear intention.

When you start to pay attention, what you’re paying attention to is connected to your intention.

You start to notice things that are incredibly helpful. Let’s say I have the intention to improve my health and I’m going to do things that improve my health.

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“I think of mindfulness as a three-part process.”

“Your intention is the foundation and then you cultivate attention.”

“Acceptance means that whatever I notice, I’m going to hold it with compassion and awareness rather than automatic judgment and resistance.”
If that means paying attention to what’s going on inside and outside, then I’m going to start to notice things like the voice in my head right now that says today is the day to indulge, and tomorrow will be the day to actually change this behavior.

If I’m really paying attention, that’s going to be a familiar voice and I might even remember that I had that voice yesterday, and it wasn’t a very good predictor of what I was going to do today.

We start to notice things in our environment that may trigger us.

We may notice where the temptations are. We may notice how other people’s behavior starts to influence what it is that we’re doing.

So, the quality of attention, when it’s connected to intention, helps us to see clearly all of the things that are influencing how we either align with our intention or move away from it.

With the third element of mindfulness – this important attitude of compassionate awareness – that is what allows us to make use of that attention.

One of the things I found is that if you only ask people to pay attention but you don’t have conversations about how important it is to get excited when you notice that you’re making the same excuse again and how wonderful it is to have that insight, then people can become very self-critical.

They can become very judgmental, frustrated, and feel that, “I’ll never change.” …Or “I’ll never change because I’m making the same excuse that I made yesterday.”

If you can see all of that with this attitude of curiosity and acceptance, it really allows you to act on it.

There’s a kind of motivation that comes from the absence of self-criticism and self-doubt that goes along with beginning to notice the things that are keeping you from your goal.

So that’s how I think about mindfulness in relationship to willpower.

Why the Process of Mindfulness Matters

Of course, meditation is one way to train mindfulness, but once you have that definition of mindfulness, almost anything can train mindfulness. It’s the process rather than the content that matters.

Dr. Buczynski: So for instance, what else might you do besides what we think of as meditation?
Dr. McGonigal: Some of the groups of people that I work with a lot are people who are dealing with food issues, physical pain, and anxiety.

I’ll just pick one of those – let’s say physical pain.

One of the inner stories that a lot of people with pain have is this: “If pain is present now, it means that what I’m doing is dangerous and it’s going to get worse. I need to avoid anything that’s associated with pain so that things don’t get worse in the future.” That’s a story that many people with pain tell themselves.

You could take any experience that is accompanied by physical discomfort and practice the process of mindfulness to test out whether or not that story is true.

“*You could take any experience that is accompanied by physical discomfort and practice the process of mindfulness to test whether or not that story is true.*”

Let’s take something like physical movement. Often people will be asked to do physical exercises to recover from an injury or to regain strength. When they begin to do those exercises, they experience discomfort.

Then, a whole pattern begins: “Oh my gosh! I’m making it worse. I’m going to hurt myself. I can’t do this.” That’s the self-protective mechanism kicking in.

Instead, why not have people experiment with: What’s your intention?

“My intention is to heal from this injury or to regain my function. I have some trust that these exercises are going to help me do that and when I do them, there’s some physical discomfort present.

What would it be like to bring an attitude of acceptance and curiosity to the physical discomfort and test out whether or not I can actually be with this discomfort knowing that it’s connected to my intention and then pay attention to how I feel afterwards – Did it get worse or do I actually feel better?”

Then we can say, “Did the discomfort go away as you relaxed into the exercise? Tomorrow morning, are you better able to move or to engage with everyday activities?”

Many people experience this when they are asked to do something that is difficult for them – it’s not just with pain.

This is especially true for anxiety or for trying to overcome an addiction where you have to go through these uncomfortable experiences.

The only way to get through uncomfortable experiences without reinforcing old patterns of anxiety or addiction or pain is to do them with this attitude of mindfulness.

That helps connect them to what their goals are – bringing them into that quality of attention. It broadens what is available to them in the moment and takes away a lot of the suffering that makes people shut down when they need to do something that will allow the process of change to unfold.
Using Mindfulness To Work with Anxiety

Dr. Buczynski: Let’s talk about the anxiety groups that you work with and what you do with them. Where does that lead?

Dr. McGonigal: It’s the same basic process. First of all, you’re checking out what people’s assumptions and beliefs are.

Many people have the belief that their anxiety is an accurate prediction of something bad happening to them and that anxiety is trying to protect them from doing something that will be embarrassing or painful or dangerous.

The first part of mindfulness is saying: Let’s actually be with what anxiety feels like and get to know what it feels like when your own body and brain is telling you not to do something and it’s trying to protect you. What is that experience like in your body? We’re looking at this in the same way as in the depression study where people were being with what sadness feels like.

What would it be like to be with what anxiety feels like? What would it be like to just get to know it in a way that is curious and accepting and self-compassionate?

That’s the first stage of mindfulness. You’re saying, “I’m just going to learn how to be with this experience. I don’t have to change any behaviors yet. I don’t have to confront things that make me anxious, but I’m going to learn that I can actually tolerate the inner experience of anxiety first and have a sense of compassion for it.”

Then the next step would be doing that kind of reality testing. Is there something that you want to do that brings up anxiety, but you know that you want the consequence of doing it?

For me, a good example of this is, for a long time, I had a fear of flying – I mean, huge! Now that can sound trivial in the big scope of challenges, but anyone who’s had a phobia knows that it doesn’t matter what the object is, the process is the same.

A big thing for me was connecting to that Want Power – to know that I want the consequence of being able to visit my family whenever I want to or to travel and meet new people. So, I had to say, “I’m going to accept the inner experience of anxiety and choose a behavior that provokes it because I have the mindfulness of knowing that I can handle the anxiety experience and I can choose something that is consistent with my goals or values.”

Since I help people to figure out what that is for them – if social anxiety is getting in the way of being able to attend a relatives wedding, I help people to connect to why they want to be there. Do they want to be able to talk about that wedding with a sister 30 years from now rather than not have that memory to share?

So, you have to get really clear about what that Want Power is.
The biggest thing when it comes to developing mindfulness for any of these challenges – willpower, mental health, physical pain – is a radical rethinking of what you’re willing to be with in order to have the life that you want.

Many people, when they come to me, are secretly hoping that this mindfulness stuff will get rid of the thing that’s in the way – mindfulness is going to be magic. Mindfulness gets rid of anxiety. Mindfulness is a miracle – it gets rid of all pain.

But the actual experience for people is often that the thing that they thought was a barrier, changes. It becomes less of a barrier, but it’s not some kind of miracle that gets rid of the inner experience that people have been using as an excuse to not engage with life.

And sometimes, barriers change quite a bit. I mean, I have to say that all of these things – pain, anxiety, and cravings – are on a slower change process than behavior. That’s something that people don’t often appreciate

For example, my anxiety around flying has really gone away to almost nothing. But it didn’t happen by trying to get rid of the anxiety. It happened by going through the process of flying a lot.

I’m also someone who’s experienced chronic pain. Just as with many people I’ve worked with, the pain really does reduce dramatically, but you don’t get rid of the pain first and then figure out how to approach things in life.

The pain goes away as a function of the willingness to be with it and to do things that are meaningful.

I find that to be one of the greatest lessons of mindfulness training: the inner experience changes last.

Sometimes, one of the mistakes that traditional therapies can make is trying to nail down changing the inner experience first before asking people to make committed choices to pursue the things that are meaningful to them.

You can really get lost trying to fix the inner experience or change the thought or reduce the emotion and sometimes that’s the very last thing to change.

**Dr. Buczynski:** If you’re willing to talk about the fear of flying, what did you do?

**Dr. McGonigal:** I had a lot of panic attacks. I would say that what helped most was having a few key moments of not flying and feeling the remorse.

One example was not being able to be at a family event that I probably should have been at and another was a professional opportunity that I turned down.
I started to realize that whatever choice I made, to fly or not fly, I ended up with the same outcome of feeling really trapped.

Choosing anxiety was reinforcing it. I had a mindfulness practice, but I hadn’t really applied it to the fear of flying yet. The mindfulness practice allowed me to see that by choosing anxiety I was creating an inner experience that, in some ways, was even worse than the temporary anxiety – having the sense of not being autonomous and not being able to choose.

So, that feeling motivated me to start – to do the flying while I had anxiety and then to apply mindfulness to the anxiety as I had it.

It went like this: “I am walking onto the plane right now and there is a voice in my head that is saying, turn around and run. Isn’t that an interesting voice? I’m going to just walk into the plane anyway and I’m going to do some really simple mindfulness exercises if anxiety comes up on the flight.”

Even if we hit turbulence, there are some really basic mindfulness exercises to do that aren’t exactly meditations. You can name three things that you can see right now. For example: “I can see the color red. I can see that behind the seat there are instructions for how to drop the tray table…”

This helps to ground yourself in the present moment by using some mindfulness techniques.

It just felt like a lot of self-care. The last thing that helped to do that – now I pretty much fly every week and it’s not traumatic at all – was to give myself credit for it and that’s part of the mindfulness process.

I always end any mindfulness practice with appreciation and that’s really important to do – especially if you’re working to train mindfulness.

You make sure that you include in any session and after every exercise that you have people give themselves credit: How amazing it is that you were willing to be with this discomfort. How amazing it is that you made time for this practice today.

Can you acknowledge your own courage? Can you acknowledge your own self-care? Can you acknowledge your own willingness?

For me, that appreciation and giving credit was the piece I had been missing: “Hey, this is pretty cool that I could be panicked and get on a plane anyway. I’m going to celebrate that!”

How Mindfulness Addresses Pain

Dr. Buczynski: Would you walk us through the pain? What was your experience with that like?

Dr. McGonigal: That was a little bit different. My experience with chronic pain was in having debilitating headaches everyday from childhood through early adulthood. For me, pain was something that was always present and tended to get worse over the course of the day.
I had created a lot of strategies for withdrawing from the world in order to try to manage my pain – not doing things at night or going right home – and not wanting to aggravate the pain.

It wasn’t as if I had to make a choice to do something in the same way as getting on a plane – it was really about learning that there was a lot of room for the pain to be present and I didn’t have to give it my full attention in the way that I was.

I first learned that in the mindfulness-based stress reduction program. That was my first introduction… and I was in that class as a medical student.

I did my graduate work in psychology and medicine and I was there as a medical student in a class with people who were there to relieve their own suffering.

It was such a blessing because I wasn’t just learning how to use mindfulness to help people, but I was the one who was being helped.

I’m so grateful that I was able to get academic credit for taking MBSR that first year in graduate school – that practice is what allowed me to have a radically different relationship to physical discomfort.

**Dr. Buczynski:** Interesting. Now, in some of the preparation that we did, I came across one study where you said that just three hours of meditation led to improved attention and self-control.

**Dr. McGonigal:** Yes, that was an interesting study that I was looking at. It wasn’t three hours in one setting. I think it was spread out over a couple of weeks and the meditation practice in that study was a mind/body awareness practice.

It looks a lot like MBSR, but it wasn’t delivered in that same kind of intensive eight-week program.

People were taught just one technique: to pay attention to what was happening in their body and to breathe in a way that was stabilizing. It was really a simple mind/body awareness technique.

But this particular study found that there were improvements. I don’t remember the precise neuropsychological tests they used, but I believe that that was also the study that found changes in white matter density in areas associated with self-control after a very brief dose of meditation.

There are a few other studies like that to show how small doses of meditation can lead to very interesting changes in the brain.

Another study looked at the classic MBSR and found that the eight-week training was associated with changes in the hippocampus as we talked about and also decreases in the density of the amygdala among people who reported reduced stress as an effect of doing the mindfulness training.6
I’m sure many of your viewers are familiar with the amygdala. It is the part of the brain that often gets bigger and better connected as a response to traumatic experiences, anxiety disorders and physical pain.

Basically, this happens to anyone who is exposed to large scale or chronic suffering.

This is the part of the brain that is very vigilant to potential suffering and gets even better at detecting it. This was a change that was found after only an eight-week training program in mindfulness, specifically among people for whom the program worked.

That, I think, is an important caveat. A number of these meditation or mindfulness trainings have not found a group effect. Some studies find a group effect where all you have to do is be in the right group and you get the benefit.

But a lot of the really interesting findings are associated either with the amount of time people are spending practicing at home, doing their meditations or with the specific outcome they’re reporting.

This finding suggests that you can’t just send someone to mindfulness training and they’re going to radically be transformed.

It’s more about engaging with the processes and really opening yourself up to what these mindfulness practices are asking of you.

Mindfulness training is not something that someone else can do to you. It’s a pretty big change that you’re asking people to embrace if they have been spending their whole lives trying to get rid of something or to fix a problem – something that they think is broken.

This whole mindfulness idea is pretty radical and a lot of the research suggests that people’s engagement with it is really important!

**The Importance of Compassion**

**Dr. Buczynski:** Let’s talk about compassion because I know you’ve done a lot of work with that…

**Dr. McGonigal:** In fact, we just published a paper a couple of weeks ago in *Motivation and Emotion* showing that compassion training increases mindfulness.9

**Dr. Buczynski:** We usually think of it as the other way around – that mindfulness increases compassion.

**Dr. McGonigal:** There have been some studies looking at that with mixed results…

The studies that show mindfulness increasing compassion tend to be more recent because, interestingly, the standard mindfulness training (MBSR) has started to include compassion and self-compassion into the protocol.9

In part, this is a response to the fact that early research findings were not positive and you see this kind of response in the community that says, “Let’s integrate a little bit of loving kindness and self-compassion into the protocol.”
As a result, there is some evidence now that mindfulness is improving compassion, but perhaps that’s because compassion is being specifically addressed.

The recent study that we published is the opposite – we’re training compassion but it is impossible, from my point of view, to train compassion without doing it from the foundation of mindfulness.9

The way that one trains compassion is to get really clear on what is getting in the way of compassion – for example, the thought that says that a person is not deserving of it or if it’s the case of self-compassion, the belief that, “I’m not deserving of compassion.”

There are emotions that pull us away from compassion, like the anxiety that comes up if I’m around someone else who’s suffering. This anxiety makes me feel that I need to get away from that suffering rather than to stay and be supportive.

We need to be aware of all of that and we need to have the intention of cultivating the compassion that allows us to move through that.

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Dr. Buczynski: Did you start with a group of subjects?
Dr. McGonigal: Yes, this study is an eight-week protocol that we developed at Stanford and modeled on MBSR.

We are teaching people compassion meditation practices and we are doing a lot of conversation about compassion. They also get informal compassion homework assignments – to notice those difficult to feel compassion for and to notice what it feels like in your body when you find yourself feeling anger or disgust at someone instead of compassion.

They get the mindfulness of compassion exercises to do at home or maybe as a way to try a new point of view. For example, in that moment, would it be possible to say to yourself, “You know what? Just like me, that person is suffering and wants to be free from suffering.”

We want them to see if that has an effect on their body or on their attitude or on their actions.

It’s a small group class. It tends to be about 15 to 25 people and we go week to week. We start with the question: What is compassion?

We talk about and start to cultivate compassion for loved ones, which can be harder than it sounds.

Often when our own loved ones are suffering, we end up feeling everything except compassion. We feel empathic distress. We make it
about our own suffering now. “Oh my gosh! My loved one is sick. What am I going to do?” We go into problem solving mode or we go into despair and grief.

So we cultivate the ability to stay with compassion rather than any of those other responses when people you care about are suffering.

Then, we turn it towards ourselves, which is incredibly difficult for a lot of people.

“**The ability to receive compassion from others is one of the most under-appreciated issues among a wide range of psychological challenges.**”

The ability to receive compassion from others is one of the most under-appreciated issues among a wide range of psychological challenges like depression, anxiety, eating disorders, and addiction.

Also, there’s a profound sense that, “I don’t know how to and I’m not sure I want to receive help and compassion from others” as well as “I don’t know how to do that for myself.”

So we spend some time with self-compassion and then we start to broaden the compassion out to people they don’t like, or people they have conflict with, or with strangers…

**Dr. Buczynski:** What kind of pre and post test measures are you using?

**Dr. McGonigal:** The first paper that we published a little more than a year ago was looking at compassion and fears of compassion.

We found that this program increases self-reported, self-compassion and decreases the fear of receiving compassion from others and the fear of offering compassion to others.

For example, prior to training, it’s the belief that, “If I’m too compassionate, people will take advantage of me or if I’m too compassionate, I’ll get drained because I don’t have enough compassion to go around for all of the suffering in the world.”

We found that there were decreases in those fears of compassion as well as increases in self-compassion. That was the first paper that we published.

The paper that we most recently published found that this practice was decreasing worry and anxiety, increasing healthy emotion regulation, decreasing emotion suppression – this tendency not to let other people know what you’re thinking and feeling – as well as increasing mindfulness.

Then we have some other unpublished findings that I can only hint at, but we’re pretty sure that this program is also decreasing stress and depression.

**Dr. Buczynski:** I want you to go through those again because you whipped through them really fast. So, for the most recent study, tell us what the findings were again?

**Dr. McGonigal:** We were really interested in how people were dealing with their own suffering – that was what the second paper was about.
I should also say that this is a randomized controlled trial where people entered into the study and it was a waitlist control. So, we’re looking here at comparing people who went through the program with people who have not yet gone through the program.

The next stage will be an active control group.

We’re really looking at pre to post as well as looking at two groups and comparing them.

You’ll see the same benefits whichever way you do the comparison.

We were interested in how people were dealing with their own suffering and we used a worry questionnaire that looks at how much time they were spending thinking about things that might go wrong and how much those worries and anxieties were influencing their quality of life – the worries were being disruptive and intrusive.

We found that the worries decreased as a result of training in compassion – people were ruminating less and having less anxiety.

“We found that the worries decreased as a result of training in compassion – people were ruminating less and having less anxiety.”

We also looked at emotion regulation. In the emotion regulation world, it’s pretty much considered a good rule of thumb that it is healthier to reappraise difficult emotions – to try to think about things a little bit differently, take a different perspective, or maybe take a broader point of view rather than to try to just shut down the emotions and not let anyone else know how you’re feeling – emotion suppression.

We found in the study that the experience of cultivating compassion was helping people move toward healthy emotion regulation strategies and this is all self-reported. Also, they were less likely to be trying not to let other people know how they were feeling.⁹

“We were interested in how people were dealing with their own suffering and we used a worry questionnaire.”

…When I was first getting involved in psychology research on emotion regulation and emotion suppression, we, and I think most people were familiar with the findings that it’s bad for your health to hide your emotions – that if you hide your anger, it raises your blood pressure and increases stress hormones – and that’s not great.

But I think people are less familiar with the research showing how much emotion suppression dismantles social networks.

When you hide both negative and positive emotions, it is very hard to establish supportive relationships. People’s social networks get smaller.

Probably many people watching this work with patients, who are physically ill, experience chronic pain, deal with addiction, depression, anxiety, and mental illness. These are all conditions that drive people away, right? And probably these patients are already in a cycle that is self-isolating.

“People are less familiar with the research showing how much emotion suppression dismantles social networks.”
Even though this wasn’t the focus of the paper, when I see that people are suppressing their emotions less, I get very encouraged.

The degree to which people are able to be more open with both their positive and negative emotions, the more they’re going to be able to build those socially supported relationships that are absolutely key to recovering from any of the types of suffering that we’re talking about.

We also found that mindfulness increased. We probably should always be suspicious when people are using self-report measures of mindfulness, which we were.

These are measures that ask: What percentage of the time are you paying attention to what you’re doing versus thinking about other things? Do you find that you are open and accepting of your emotions or do you try to distract yourself when you’re feeling negative emotions?

This is all self-report and we found that people were self-reporting greater mindfulness.

Dr. Buczynski: Would you say there’s probably a bias in some of that?

Dr. McGonigal: Well, I don’t know. This is really interesting when it comes to mindfulness research. There have been some studies showing that when people train in mindfulness, they actually report less mindfulness afterward than before the training.

Part of mindfulness training is being able to notice when you’re distracted – when you’re engaging in these processes of not wanting to be with whatever you’re thinking and feeling.

The degree to which people are able to be more open with both their positive and negative emotions, the more they’re going to be able to build socially supported relationships that are key to recovering from suffering.

Dr. Buczynski: Exactly!

Dr. McGonigal: So, I think it’s actually very hard to know what to do with self-reported mindfulness.

One way to think about it is that they’re definitely endorsing mindfulness.

When you look at someone who is showing improvements in self-reported mindfulness, part of what you’re looking at is someone who understands the value of not pushing away experiences.

They understand the value of being in the present moment.

So, I don’t know if we can conclusively say, but they’ve gotten much better at it.

That’s the kind of thing where you probably need a constellation of measures including FMRI brain imagining which we don’t yet have. Actually, the research team is working on doing a brain imaging study with this protocol, but we don’t have that yet.
Dr. Buczynski: What’s your next step? Will it be to use a randomized control where it’s other than a waitlist?

Dr. McGonigal: Yes...there are a lot of other studies going on right now. There’s a study with chronic pain patients going on now, but we don’t have results for it yet. This has been offered for cancer patients and survivors as well as for veterans with PTSD. We don’t have any data ready to talk about with that, but that’s what is ongoing.

The next major RCT is going to use an active control and have brain imaging. We’re just in the recruitment process right now, so probably it will be another two years or so before that data’s published.

Dr. Buczynski: What will you use with the active control?

Dr. McGonigal: We are probably going to use MBSR. We have used as an active control in the past, an improvisation class for various reasons.

One of the very first studies of this compared compassion training to improv training and we found that there were some differences, but there was a lot of benefit to improv training, which is a whole other conversation to have.

That’s going to be important moving forward to use an active control that involves meditation practice.

Dr. Buczynski: Interesting! I’m so sorry we’ve run out of time. There’s so much to talk about here; we’ll have to pick up again…

Dr. McGonigal: I’ll keep you up-to-date on our data.

Dr. Buczynski: Right! Are there any concluding thoughts that you’d like to share?

Dr. McGonigal: I know this may be a bit of a truism, but I just wrapped up the Compassion Teacher Training Program at Stanford.

It’s a year-long professional program through the School of Medicine and these are people who were already practicing clinicians. We had doctors, psychologists, psychotherapists, social workers; we had chaplains and people working in hospice. You name it – we had people really skilled at what they were doing.

The main training was to get them to fully engage with these practices of compassion themselves and deeply explore any shadows around compassion and self-compassion.

“You’ll be modeling compassion in a way that is just as powerful as whatever instruction you’re giving the people you’re working with.”

That was the most important training that we could offer to people who wanted to then share it with others.

I feel like that’s a really important message for anyone who wants to share mindfulness or compassion – it’s your own commitment to the process of mindfulness and compassion that makes it work when you’re trying to teach a group or share it.

“It’s your own commitment to the process of mindfulness and compassion that makes it work when you’re trying to teach a group or share it.”

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You are then a model in everything that you do, whether you’re mindfully accepting clients’ outbursts at you about how much they hate a mindfulness exercise or whether you’re willing to be authentic and transparent in talking about your own suffering.

You’ll be modeling compassion in a way that is just as powerful as whatever instruction you’re giving the people you’re working with.

**Dr. Buczynski:** That would be so exciting and we’ll have you back to tell us all about it! So thank you very much!

**Dr. McGonigal:** Thank you!
References:


About The Speaker:

Kelly McGonigal, PhD, is a health psychologist and lecturer at Stanford University, and a leading expert in the new field of “science-help.” She is passionate about translating cutting-edge research from psychology, neuroscience, and medicine into practical strategies for health, happiness, and personal success.

Her most recent book, *The Willpower Instinct: How Self-Control Works, Why It Matters, and What You Can Do to Get More of It*, explores the latest research on motivation, temptation, and procrastination, as well as what it takes to transform habits, persevere at challenges, and make a successful change.

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